

which appear to have been gouged out of the bed of the glacier stream, but they are all within the range of the minor advances and recessions of the ice, and still leave room for doubt in the minds of those who are inclined to the view that most of the large fragments in the ground moraine have got in from above.

The author has long been engaged in controversy on the causes and mode of operation of glacial agents, and has, as is well known, pronounced views upon the subject; but in a work of this kind we might have expected to find not merely those facts stated which support the author's theories. Yet we look in vain for a sketch of the work of icebergs, floe-bergs, shore-ice, pack-ice, &c., in handing on and distributing material from the higher ground over wide submarine areas.

We can hardly ignore the potent agency of ice-masses, such as that seen by Ross and Parry, and estimated at 1,500,000,000 tons weight, in modifying the surface of the land on which they grounded, and against which they were driven by wind and current with a velocity far greater than that attained by any glacier or ice-sheet.

Icebergs, 700 or 800 feet high, have been seen sailing along off Cape Horn, and we know that the volume of ice below the water would be between eight and nine times that seen above it. Not only must we take account of the tremendous momentum of this stranding ice, but the enormous quantity of débris now carried by floating ice and distributed over the sea-bottom would seem to deserve some notice. The fact calls for some explanation, if it be a fact, that nothing of the kind is recognised among the glacial deposits as having been raised from the sea-bed within reach of observation.

Towards the end of the work, where he is developing a classification of forms, our author gives a separate chapter on coast-lines and another on basins, which last is very much a continuation of the chapters on glacial phenomena. He accepts the glacial origin of most rock basins, though he admits that there are difficulties in reconciling this view with some of the phenomena observed in the outer Hebrides, for instance (pp. 242-244).

He describes the loess of Southern and South-eastern Russia as primarily a flood-loam of glacial times, and considers that much of that occurring in the river valleys of Central Europe has been derived from Alpine lands (p. 192). But any-one who has examined the character and mode of occurrence of the black, dusty Tchernosem of Southern Russia, covering all the surface high and low, continually blown away and washed away and ever renewed, will have his confidence in those wide generalisations as to the origin of all loess considerably shaken.

England is the country of all countries for the study of the fossiliferous rocks; America is too broad, Switzerland too high; in England the evidence is fairly complete within easy distances, and is generally accessible. So it is in Scotland that we find the most readily available epitome of the phenomena of rock-structure. It is, therefore, to be regretted that a larger portion of the illustrations were not taken from actual sections seen in Scotland or England. The work would have been more valuable if the facts could have been verified in the field in a summer's trip. As it is there are only a dozen Scotch sections, including the two excellent photographs of weathered granite, and a couple from England, while

thirty-five of those of which the locality is given are taken from foreign works. The remaining forty-two have no locality—that is, are only diagrams, and those not very satisfactory.

If the glossary was intended to be confined to words used in this work, there are not many which it would not have been better to have explained or paraphrased in the text, and most of them need no further explanation than should be gained from the context; while some need not have been used at all, for it is not easy to state a case in which anything is gained by using epigene and hypogene instead of above-ground and under-ground. Of those that do seem to require a note, some—for instance, "tectonic"—are not mentioned in the glossary. But if it is a general glossary to assist those who might wish to follow up the line of inquiry by reading special memoirs, the information is not wide enough. It might have been helpful to have enabled the reader to discriminate between diorite and syenite, dolerite and basalt, and so on; and, if the origin of the word is explained, to point out that diorite was so named from the ease with which the component minerals could be distinguished as compared with dolerite which was obscure, although such rough distinctions were not those upon which modern petrologists rely for their classification.

However, after cautioning our readers that there are other interpretations of many of the facts observed, besides those offered in this work, and pointing out some slips which will probably be corrected in the next edition, we can recommend them to read this able and clearly arranged succession of essays upon an interesting group of natural phenomena.

THE OASIS OF SÍWAH.

From Sphinx to Oracle. By A. Silva White. Pp. xvi + 277. 2 Maps, and 57 Illustrations. (Hurst and Blackett, 1899.)

UNDER a somewhat fantastic title Mr. A. Silva White has published an account of a journey which he made in the early part of the present year to the Oasis of Síwah, the Oasis that was made for ever famous by Alexander the Great, who visited it after he had conquered Phœnicia and Egypt. Mr. White's visit seems to have been prompted by an inspiration which came upon him after he had drunk deep of the "sonorous silence" of the desert, at "midnight hours," "in the radiance of a full-moon." We wish that the inspiration had been a thing born of the day, and that it had counselled him to persevere in making preparations which took the form of studying the history and languages, ancient and modern, of the land over which he had resolved to travel. His original object seems to have been to visit Jarabub, the stronghold of the powerful "Senussi" sect of Muhammadans, which lies rather more than one hundred miles from Síwah, in a direction more west than north. As Mr. White talks of his "political studies" we may assume that he had some definite mission when he set out for this uninviting spot; we have no right to inquire what the mission was, and we can only offer him our sympathy in his failure to reach the place where he fain would have been. To this failure we perhaps owe the appearance of his work.

The Oasis of Sîwah has within the last century been visited by W. G. Browne, Hornemann, Cailland, Minutoli, Drovetti, Ricci, Rohlfs, all of whom have written accounts of their journeys there, and of the antiquities of the place; several other travellers have sojourned there for short periods, and thus the Oasis is well known. The ancient Egyptians, as far back as the time of Seti I. (*circa* B.C. 1350), called this Oasis "Sekhet-Ami," *i.e.* the "Field of the Am trees." And though such a name might well be given to any of the Oases, we are quite certain that Sîwah was thus called, for a text at Denderah describes Sekhet-Ami as "a name given to the mountainous countries of Qauuti which lie to the west of the border of the land of "Ah." Now Ah is the Oasis of Farâfra, which lies to the south of the Oasis Minor of the Romans (see Brugsch, "Reise nachden Grossen Oase," Plates xxiii. and xxiv., Leipzig, 1878).

It is probable that a small temple dedicated to some ram-headed god existed here in early times, but up to the present we have no definite evidence of the fact. In the time of Alexander the Great the god worshipped at the Oasis of Sîwah was identified with Amen-Râ, whose title was *Seft abu* or "two-horned," and the Macedonian conqueror regarded him as his father. The Ptolemies did much for the Oasis of Sîwah, and it is more than probable that the temples and buildings there, which have been fully described by the old historian Diodorus, and by modern travellers, belong to the period of their rule over Egypt. The Arab writers knew nothing of the ancient history of Sîwah, as we may see from the meagre summary given by Yakût in his Geography (ed. Wüstenfeld, tom. iv. p. 873), and the information which they supply is generally distorted and legendary.

But to return to Mr. White's book. Of the twenty-six chapters of his narrative the greater number are devoted to detailing the incidents of his daily journey, and conversations with members of his caravan, and personal feelings and impressions about men and things. One chapter, based upon the works of French writers, is devoted to the Senussi, or followers of a certain "mad mullah" called Sidi Muhammad ibn Ali es-Senussi, who flourished in the first half of this century; three to the antiquities of Sîwah; one to a description of Jarabub, and so on. In the chapter headed "Ma'lèsh" he tells us that Egyptologists have assured him that he "has opened up the Oasis to them and to others," but how has he done it? We have examined his book carefully, but can find few antiquarian facts which were not known before; indeed, if he had drawn upon some work like Parthey's "Das Orakel und die Oase des Ammon," his book would have been more valuable and more interesting. He gives a description of a tomb in the "hill of the mummies" (*i.e.* Gebel Mûtâh, or "hill of the dead"), but without the hieroglyphic texts. This tomb Mr. Daressy first dated at B.C. 1200, but afterwards he wisely brought its date down to the time of Alexander the Great.

In Mr. White's description of the tomb we find *Amsel* instead of *Amset*, and *Duau-mulef* for *Duau* (or *Tuau*) -*mutef*, and *Kebh-sennef* for *Kebh-sennuf*; Prof. Sayce, who supplied the description, must be held guiltless of such mistakes as these. Mr. White's Arabic also is not above suspicion. Thus he writes *Ruffir* for *Rafiyeh*, "shawl for

the head" (p. 31); *Quiès* for *Kuwayyes*, "good, pretty" (pp. 47, 69); in the Arabic name of God (p. 119), the *teshddid* is over the wrong *lam*; *ma'es es-salâmeh* means "with peace," *i.e.* "good bye" (p. 196); *Ruttâb* for *Rutub* (p. 232); &c. In short, Mr. White's book afforded him, no doubt, great pleasure in writing, but it seems that his want of knowledge of what other travellers have written about Sîwah has made him exaggerate the importance of his journey to archaeologists.

Archæologists want copies of all the inscriptions which they can get from the Oases, and all the information possible; but the present state of Mr. White's archæological knowledge hardly entitles him to claim to have opened Sîwah to the Egyptologist. If he will first make his studies, and then visit the Oracle of Ammon, we shall be glad to hear what he has to say. His present work is written in a rather flippant style, and a sentence like the following jars upon us:—

"Abd-el-Gade did not reply." But his answer lay in his "embarrassed silence. Damn!" (p. 176). Mr. White's footnote to this is "An execration (*lapsus calami*)."

AN ITALIAN TEXT-BOOK OF PHYSIOLOGICAL CHEMISTRY.

Chimica Fisiologica per uso dei Medici e degli Studenti.

By Dr. Filippo Bottazzi, libero docente di Fisiologia in Firenze. Vol. I. "Chimica Fisiologica generale." Pp. xv + 428. Vol. II. "Chimica Fisiologica speciale." Pp. xii + 465. (Milan, 1898.)

THIS work is initially interesting as being the first substantial text-book of the subject published by an Italian for Italian students. But it is much more than this. It is extremely well written, and differing as it does in many respects in both form and substance from the works with which we are already familiar, it is very suggestive as to many points of view from which the subject may in the near future make its most profitable advance.

A text-book of physiological chemistry must really be neither a treatise on physiology nor on chemistry. If it deals with the subject under the heads of respiration, nutrition, &c., it is too strictly physiological. On the other hand, if it consists chiefly of a list of substances and a description of their properties and methods of preparation and estimation, it is too chemical. Hence the author has divided the work into two parts. Of these, Vol. i. deals with general physiological chemistry, and studies the materials introduced into the living organism, the changes they undergo in the alimentary canal as they become assimilable, the mechanisms concerned in their absorption and assimilation, and finally the products of their disintegration in the living tissues as sources of energy. This complete metabolic cycle is treated in separate chapters (2-5), devoted to each group of the simple food-stuffs taken in the following order: "Inorganic substances" (water, salts, and certain gases), "Carbohydrates," "Fats," and "Proteids." These are preceded by a chapter on "The Elements," and followed by two dealing respectively with "Colloids" and "Ferments and Enzymes." This arrangement might at first